29589 S/108/61/016/011/005/007
D201/D304

9,3260 (1139,1159)

AUTHORS: Gyunninen, E.M., Zanadvorov, P.N., Kotik, I.P., and Makarov, G.I.

TITLE: The effect of a complex shape periodic signal on a free-running oscillator

PERIODICAL: Radiotekhnika, v. 16, no. 11, 1961, 39 - 44

TEXT: The pure theory of phasing of oscillators presents difficulties which make the solutions of its problem practically impossible. In the present article, the author considers the solution of this problem in its numerical context, by means of a fast electronic computer. Such a problem, as opposed to the purely analytical one, is stated to be comparatively easy, but the quasilinear method of analysis is applied for simplification and numerical substitution of the equation of the oscillator, upon which acts the external force $A(\tau)$. If x is the voltage at the grid, reduced to the amplitude x_m of the steady state oscillations at the grid, ω_o and δ - the frequency and attenuation of the oscillating circuit, $\tau = \omega_o t$ - dimen-

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The effect of complex shape ...

sionless time; $\overline{S}_0$ - average reduced slope of the valve. μ, γ, S_0, and β - constants, then the fundamental equation may be represented as

$$\frac{d^2x}{d\tau^2} + x = -\mu\left\{\delta - M\omega_0 S_0\left[1 - \frac{2}{\pi}\operatorname{arc\,tg}\,\beta x_m\right]\right\}\frac{dx}{d\tau} + \gamma A(\tau). \quad (3)$$

Practical values are now assigned to the parameters of (3) thus: $\delta = 0.8$; $M\omega_0 S_0 = 1.12$; $\beta = 0.422$; $\mu = 10^{-2}$ and 10^{-3}, $\gamma = 0.1$ and 0.01 are the values resulting from practical assessment of the valve parameters and regime. The acting force has been taken as having the form of consecutive "distorted sinusoidal pulses" $A(\tau)$ with linear variation of amplitude and initial phase. Thus $A(\tau)$ had the form of

$$A(\tau) = \begin{cases} 0{,}08(\tau+3)\cdot\sin[\tau(0{,}8+0{,}02\tau)], & 0<\tau<\tau_k, \\ 0, & \begin{cases}\tau<0,\\ \tau>\tau_k,\end{cases} \end{cases} \quad (4)$$

where τ_k is determined and again from an arbitrary and logical con-

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dition $(0.8 + 0.02\ \tau_k)\tau_k = 2k\pi$, so that when $A(\tau_k) = 0$, $\tau = \tau_k$, $k = 1, 2, 3, 4, 5$ so that $\tau_1 = 6.724$, $\tau_2 = 12.067$, $\tau_3 = 16.640$, $\tau_4 = 20.902$, $\tau_5 = 24.394$. The analysis has shown that to a great degree of accuracy the amplitude and phase of the oscillator may be said to be established towards the end of the pulse disturbance; between the pulses the oscillations may be assumed to be harmonic and

$$\left.\begin{aligned} x &= x_m \cos(\tau - \varphi_n) \\ \frac{dx}{d\tau} &= -x_m \sin(\tau - \varphi_n) \\ x_m &= \sqrt{x^2 + \left(\frac{dx}{d\tau}\right)^2} \\ \varphi_n &= \tau + \operatorname{arc\,tg} \frac{dx/d\tau}{x} \end{aligned}\right\} \qquad (5)$$

hold, where φ_n - the initial oscillator phase until the arrival of

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The effect of complex shape ...

the (n + 1)-th pulse. The evaluations were made on a fast electronic computer, Eq. (3) being integrated by the Runge-Kutta method. The results obtained are given in Table 1 and show that the phase φ_n depends little on μ and γ, γ determining only the number of pulses required for attaining phase φ_n (γ characterizes the external force acting on the oscillator). The obtained values φ_n were compared with the phase ψ of the fundamental of the sequence of pulses $A(\tau)$ and the results are given in Table 2. Finally, if the force acting on the oscillator has the form of bursts of oscillations, whose amplitude and detuning are small and slowly varying, the steady state phase of the oscillator may be determined by the method of P.N. Zanadvorov (Ref. 1: Radiotekhnika, v. 3, no. 2, 1958). There are 2 tables, and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: P.W. Fraser, PIRE, v. 45, no. 9, 1957.

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D201/D304

The effect of complex shape ...

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications im. A.S. Popov) [Abstractor's note: Name of Associatiation taken from 1st page of journal]

SUBMITTED: January 5, 1961

Card 5/7

L 12470-63

S/108/63/018/004/005/008

44

AUTHOR: Zanadvorov, P.N.

TITLE: Procedures for determination of the phase of oscillations in a non-autonomous autogenerator during small reaction

PERIODICAL: Radiotekhnika, v. 18, no. 4, 1963, 31-39

TEXT: By the introduction of generalized coordinates and parameters, it is possible to construct the solution of problems (for very general cases) of reaction of radiopulsation of a small amplitude with a right angled envelope. This solution is expedient for practical use at any values of parameters and any initial values. The constructed solution allows the use of a descriptive, calculated (or graphic) method for solution of even a wider class of problems --of processes for determination of the phase of oscillations of an autogenerator during reaction of a radiopulsation with an arbitrary envelope. The graphic presentation of generalized curves for determination of the phase gives approximated values for the solution of problems

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S/108/63/018/004/005/008 D

L 12470-63
Procedures for determination of the phase...

with an arbitrary envelope of reaction or with a changing frequency of filling. The accuracy of such a solution depends on the number of steps, and can be made sufficiently high. Presentation of the article includes abbreviated equations and generalized coordinates, solution of the equations for the phase, plotting of the graph for the determination of the phase, construction of the approximated solution for the case of the non-right angled envelope, and an example of the plot of graphs for determination of a phase for reaction of a concrete form. There are 5 figures, 1 table, and 4 foreign references.

SUBMITTED: March 7, 1962

Card 2/2

CHIRKOV, M.K.; ZANADVOROV, R.N.

Effect of high-amplitude radio pulses on the operation of a self-oscillator. Izv.vys.ucheb.zav.;radiofiz. 2 no.3: 473-482 '59. (MIRA 13:2)

1. Leningradskiy gosudarstvennyy universitet.
(Oscillators, Electric)

ZANADVOROV, S., assistent

Large mixers. Obshchestv. pit. no.9:34-35 S '61. (MIRA 14:11)

1. Kafedra tekhnologii prigotovleniya pishchi Moskovskogo instituta narodnogo khozyaystva im. G.V.Plekhanova.
(Kitchen utensils)

DROGALIN, P.V.; KOSINSKIY, V.S.; ZANADVOROV, S., redaktor; KOF'ANOV, P., tekhnicheskiy redaktor

[Grassland crop rotation in Kuban collective farms] Travopol'nye sevooboroty v kolkhozakh Kubani. Pod obshchei red. M.G.Chizhevskogo. Krasnodar, Kraevoe gos. izd-vo, 1951. 155 p. [Microfilm] (MLRA 7:10)
(Kuban--Rotation of crops)
(Rotation of crops--Kuban)

ZANADVOROV, S., assistent

Device for cutting onions. Obshchestv. pit. no.7:34 Jl '61.
(MIRA 14:8)

1. Kafedra tekhnologii prigotovleniya pishchi Moskovskogo instituta narodnogo khozyaystva im. G.V. Plekhanova.
(Kitchen utensils)

LOVACHEVA, G., dotsent; ZANADVOROV, S.

Additional information on the production of concentrated bone boullon. Mais. ind. SSSR 32 no.1:29-30 '61. (MIRA 14:7)

1. Moskovskiy institut narodnogo khozyaystva imeni Plekhanova.
(Soups)

ZANADVOROV, S.; LIKHACHEVA, A.

Pressure cookery. Obshchestv.pit. no.2:42 F '63. (MIRA 16:4)
(Pressure cookery)

ZAKADVOROV, Sergey Ivanovich; LOVACHEVA, Galina Nikolayevna; CHERVYAKOVA, L.S., red.

[Practical work on the technology of food preparation] Prakticheskie zaniatiia po tekhnologii prigotovleniia pishchi. Izd.2., perer. i dop. Moskva, Ekonomika, 1964. 307 p. (MIRA 17:9)

ZANADVOROV, Sergey Ivanovich; LOVACHEVA, Galina Nikolayevna; LOBANOV, D.I., prof., red.; KAGANOVA, A.A., red.; KISELEVA, A.A., tekhn.red.

[Practical studies in the technology of food handling and cooking] Prakticheskie zaniatiia po tekhnologii prigotovleniia pishchi. Pod red. D.I.Lobanova. Moskva, Gos.izd-vo torg.lit-ry, 1960. 295 p. (MIRA 13:12)

(Cookery)

ZANADVOROV, S.M., red.

[Fruit culture] Plodovodstvo. [Stavropol'] Krasnodarskoe knizhnoe izd-vo, 1957. 267 p. (MIRA 11:5)
(Fruit culture)

PRIYMAK, A.K., doktor sel'khoz. nauk, red.; KOLESNIKOV, M.A., kand. sel'khoz. nauk, red.; TRUSEVICH, G.V., kand. sel'khoz. nauk, red.; PAL'MAN, V.I., red.; ZANADVOROV, S.M., red.; RUCH'YEV, L.I., tekhn. red.; KHLOBORDOV, V.I., tekhn. red.

[Research achievements of State Northern Caucasus Regional Research Institute of Fruit Culture and Viticulture] Itogi nauchno-issledovatel'skoi raboty. Krasnodar, Krasnodarskoe knizhnoe izd-vo, 1959. 335 p. (MIRA 14:7)

1. Severo-Kavkazskiy zonal'nyy nauchno-issledovatel'skiy institut sadovodstva i vinogradarstva.

(Caucasus, Northern—Fruit culture) (Caucasus, Northern--Viticulture)

ZANADVOROV, S.M.

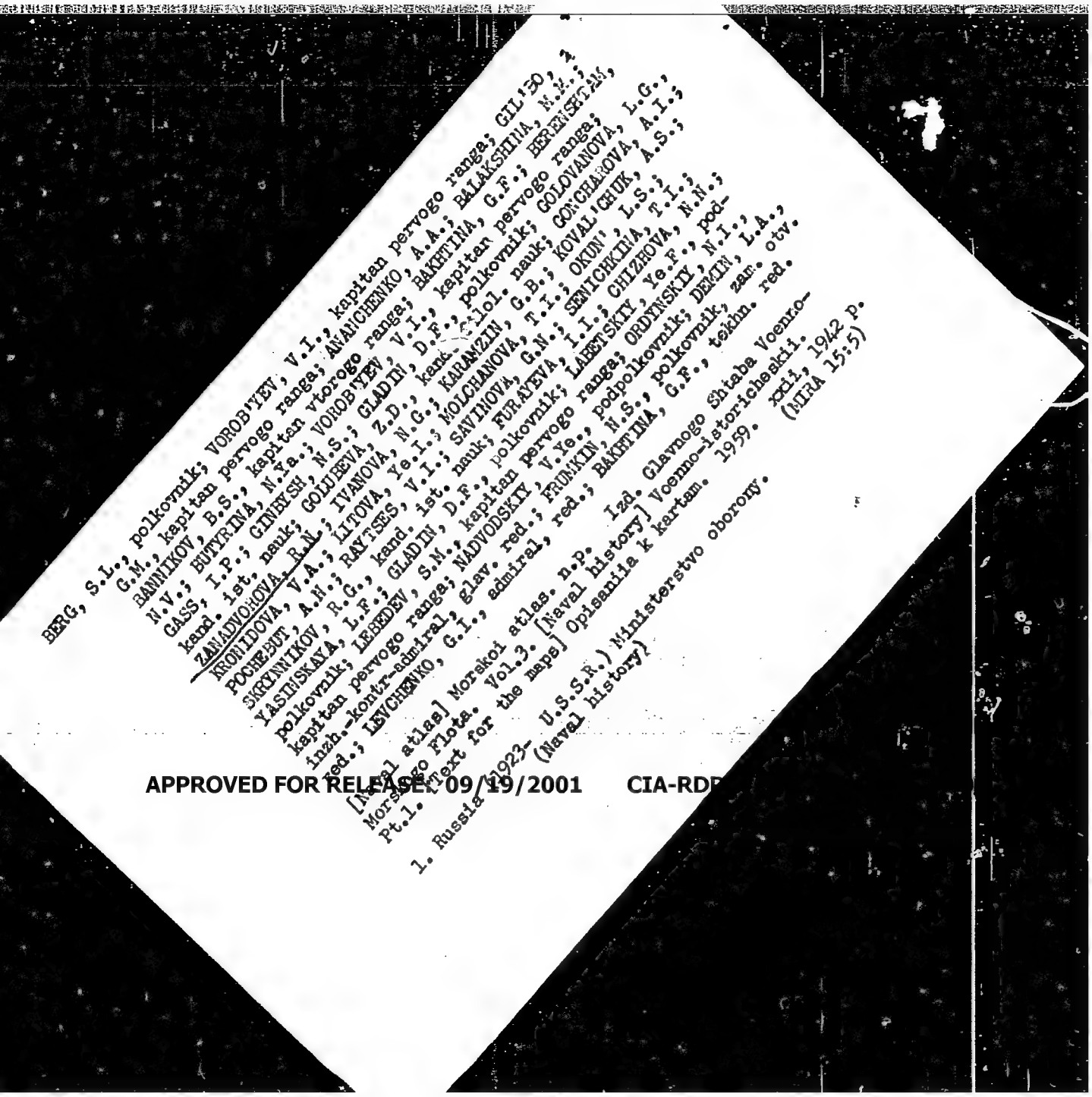
VOROB'YEVA, N.N.; KOLESNIKOV, M.A., kand.sel'skokhoz.nauk; MOTOVILOV, B.A., kand.sel'skokhoz.nauk; PODGAYEVSKAYA, A.A., kand.sel'skokhoz.nauk; PRIYMAK, A.K., doktor sel'skokhoz.nauk; RYADNOVA, I.M., kand.sel'skokhoz.nauk; SERGEYEV, L.M., kand.sel'skokhoz.nauk; SNITKO, N.F., kand.sel'skokhoz.nauk; STOROZHENKO, Ye.M.; TRUSHKVICH, G.V., kand.sel'skokhoz.nauk; ZANADVOROV, S.M., red.; KOFANOV, P.F., tekhn.red.

[Fruit culture] Plodovodstvo. Krasnodarskoe knizhnoe izd-vo, 1957. 267 p. (MIRA 12:5)

(Fruit culture)

TITOV, Aleksandr Vasil'yevich; ZANADVOROV, S.M., red.; KOFANOV, P.F., tekhn. red.

[Housing construction and local natural climatic conditions] Zhilishchnoe stroitel'stvo i mestnye prirodno-klimaticheskie usloviia; voprosy proektirovaniia i stroitel'stva zhilishch na Severnom Kavkaze. Krasnodar, Krasnodarskoe knizhnoe izd-vo, 1961. 134 p. (MIRA 16:3)
(Caucasus, Northern--Dwellings--Design and construction)



BERG, S.L., polkovnik; VOROB'IEV, V.I., kapitan pervogo ranga; GIL'SO, A.
G.M., kapitan pervogo ranga; ANANICHENKO, A.A.; BALAKSHINA, M.K.;
BANNIKOV, B.S., kapitan vtorogo ranga; BAKHTINA, G.F.; BERENSHTAM,
N.V.; BUTYRINA, N.Ya.; VOROB'IEV, V.I., kapitan pervogo ranga;
GASS, I.P.; GINEVSH, N.S.; GLADIN, D.F., polkovnik; GOLOVANOVA, L.G.,
kand. ist. nauk; GOLUBEVA, Z.D., kand. biol. nauk; GONCHAROVA, A.I.;
ZAMADVOROVA, R.M.; IVANOVA, N.G.; KARAMZIN, G.B.; KOVAL'CHUK, A.S.;
KRONIDOVA, V.A.; LITOVA, Ye.I.; MOLCHANOVA, T.I.; OKUN', L.S.;
POCHEBUT, A.N.; RAYTSES, V.I.; SAVINOVA, G.N.; SENICHKINA, T.I.;
SKRYNNIKOV, R.G., kand. ist. nauk; FURAYEVA, I.I.; CHIZHOVA, N.N.;
YASINSKAYA, L.F.; GLADIN, D.F., polkovnik; LABETSKIY, Ye.F., pod-
polkovnik; LEBEDEV, S.M., kapitan pervogo ranga; ORDYNSKIY, N.I.,
kapitan pervogo ranga; NADVODSKIY, V.Ye., podpolkovnik; DEMIN, L.A.,
inzh.-kontr-admiral, glav. red.; FRUNKIN, N.S., polkovnik, zam. otv.
red.; LEVCHENKO, G.I., admiral, red.; BAKHTINA, G.F., tekhn. red.

[Naval atlas] Morskoi atlas. n.p. Izd. Glavnogo Shtaba Voenno-
Morskogo Flota. Vol.3. [Naval history] Voenno-istoricheskii.
Pt.1. Text for the maps] Opisaniia k kartam. 1959. xcii, 1942 p.
(MHRA 15:5)

1. Russia 1923- U.S.S.R.) Ministerstvo oborony.
(Naval history)

BERG, S.L., polkovnik; VOROB'YEV, V.I., kapitan pervogo ranga; GIL'BO, G.M., kapitan pervogo ranga; ANANCHENKO, A.A.; BALAKSHINA, M.M.; BANNIKOV, B.S., kapitan vtorogo ranga; BAKHTINA, G.F.; BERENSHTAM, N.V.; BUTYRINA, N.Ya.; VOROB'YEV, V.I., kapitan pervogo ranga; GASS, I.P.; GINDYSH, N.S.; GLADIN, D.F., polkovnik; GOLOVANOVA, L.G., kand. ist. nauk; GOLUBEVA, Z.D., kand. filol. nauk; GONCHAROVA, A.I.; ZANADVOROVA, R.N.; IVANOVA, N.G.; KARAMZIN, G.B.; KOVAL'CHUK, A.S.; KRONIDOVA, V.A.; LITOVA, Ye.I.; MOLCHANOVA, T.I.; OKUN', L.S.; POCHEBUT, A.N.; RAYTSES, V.I.; SAVINOVA, G.N.; SENICHKINA, T.I.; SKRYNNIKOV, R.G., kand. ist. nauk; FURAYEVA, I.I.; CHIZHOVA, N.N.; YASINSKAYA, L.F.; GLADIN, D.F., polkovnik; LABETSKIY, Ye.F., podpolkovnik; LEBEDEV, S.M., kapitan pervogo ranga; ORDYNSKIY, N.I., kapitan pervogo ranga; NADVODSKIY, V.Ye., podpolkovnik; DEMIN, L.A., inzh.-kontr-admiral, glav. red.; FRUMKIN, N.S., polkovnik, zam. otv. red.; LEVCHENKO, G.I., admiral, red.; BAKHTINA, G.F., tekhn. red.

[Naval atlas] Morskoi atlas. n.p. Izd. Glavnogo Shtaba Voenno-Morskogo Flota. Vol.3, [Naval history] Voenno-istoricheskii. Pt.1. [Text for the maps] Opisaniia k kartam. 1959. xxii, 1942 p. (MIRA 15:5)

1. Russia (1923- U.S.S.R.) Ministerstvo oborony. (Naval history)

ZANADVOROVA, V.N., Cand Tech Sci -- (diss) "~~Course~~ Flow of a gas through the radial ~~clearance~~ gaps of the working ~~rim~~ blades of the turbine and losses connected ~~with it~~ therewith." /Kazan', 1958/, 9 pp (Min of Higher Education USSR. Kazan' Aviation Inst) 120 copies (KL, 27-58, 109)

ZANADVOROVA, V.N.

MAKSUTOVA, M.K., kand. tekhn. nauk; ZANADVOROVA, V.N., inzh.

Investigation of the efficiency of short turbine blades. Teploener-getika 5 no.1:31-33 Ja '58. (MIRA 11:1)

1. Kazanskiy aviatsionnyy institut.
(Turbines)

26.2122

S/114/60/000/010/002/007
E194/E484

AUTHOR: Zanadvorova, V.N., Candidate of Technical Sciences

TITLE: Calculation of Losses Due to the Radial Gap of Turbine Rotor Blading

PERIODICAL: Energomashinostroyeniye, 1960, No.10, pp.16-19

TEXT: A good deal of work is being done on the influence of the radial gap on the efficiency of turbine stages. The tendency to increase the degree of reaction in steam turbine stages is limited by fear of increasing leakages through the radial gap, which cannot be reliably determined. Test work that has been published relates to a few types of blade and so is not generally valid and it is difficult to get a clear idea of the complex effects that take place in the gap and neighbouring blading channels. It is accordingly desirable to study in more detail the nature of gas flow in the radial gap of turbine rotor blades. Efficiency formulae in general terms are derived on the assumption that the radial gap sets up two kinds of losses, one associated with leakage of gas through the gap and the other with disturbances to smooth flow in the blade channels. It is also assumed that the gas reaching the radial gap does not give up its energy to the

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Calculation of Losses Due to the Radial Gap of Turbine Rotor Blading

blading. On the basis of these assumptions, efficiency formulae are derived in general terms. Tests were made on a static turbine blading test rig that was specially adopted for tests with radial gap. Five types of blade profile were tested. The test conditions are described. The main experimental results on tests with stationary blading were presented to the Inter-College Conference on Gas Turbines in Kazan in 1956 and so only generalizations derived from the data are considered here. Fig.2 shows a graph of the flow factor and the discharge angle of flow from the gap as function of a complex parameter, the results may be represented by Eq.(6). Formulae are given for calculating the influence of the radial gap on the characteristics of a turbine stage and are compared with experimental values in Fig.3; it will be seen that agreement is good. Further blade loss curves depending on the degree of reaction with various types of blade gecmetry are given in Fig.4 and 5. It is concluded that the presence of a radial gap, besides permitting leakage, causes additional losses. The coefficient of additional losses increases

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S/114/60/000/010/002/007
E194/E484

Calculation of Losses Due to the Radial Gap of Turbine Rotor Blading

in proportion to the increase in relative length for reaction blading. The various types of losses are briefly discussed and an analysis is given of the influence of stage reaction on its internal efficiency with allowance for leakages. A method is proposed for assessing the total loss factor in the rotor blading with various degrees of reaction. There are 5 figures and 1 Soviet reference.

1/B

Card 3/3

ACCESSION NR: AP4040981 S/0147/64/000/002/0149/0155

AUTHOR: Zanadvorova, V. N., Podgornov, V. A.

TITLE: Investigation of a partial turbine

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1964, 149-155

TOPIC TAGS: turbine, partial turbine, partial feed turbine, turbine design, ventilation loss, turbine efficiency

ABSTRACT: When designing turbines with low gas discharge, the need arises to feed the gas partially to the working wheel. The characteristics of turbines with partial feed exhibit a number of peculiarities which are explained by the formation of additional energy losses, known in the literature as ventilation losses. With the introduction of partial feed, the internal efficiency of the turbine η_i is reduced due to: 1) the ventilation effect of those working blades which the stream of working gas does not reach at the given moment; 2) friction against the gas on the part of the surfaces of the non-working parts of the array; 3) non-uniformity of the gas parameters along the active feed arc, resulting in non-stationary phenomena; 4) drain and flow-off of the gas from the active feed arc to the non-active; 5) the intermittent character with which the gas reaches the partial wheel, as a result of which, in the outer channels, the gas is accelerated from one side

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ACCESSION NR: AP4040981

of the feed arc and decelerated from the other. The author notes that the sum reduction of the internal efficiency of the turbine η_i is caused not by the effect of each of these factors separately, but rather by their interaction. In this article, in order to accumulate experimental data characterizing the losses which occur in the event of partial feeding of the gas, a single-stage active turbine was tested (a diagram of the flow-through section may be seen in Figure 1 of the Enclosure). The air flow left the nozzles at an angle of $\alpha_1 = 24°$. The working blades, which were symmetrical ($\beta_{1geom} = \beta_{2geom} = 27°$) were tape-banded. During the tests, the degree of partiality was measured from $\varepsilon = 0.1$ to $\varepsilon = 0.5$ by obstructing the nozzle channel group from the intake and outlet side. Turbine characteristics were recorded at a constant gradient corresponding to $\lambda_{ad} = 0.81$. The degree of reactance at the mean diameter was zero. The parameter u/c_{ad} was varied by modifying the load on the shaft, thus changing the number of turbine revolutions. Tests were conducted with different combinations of the values of the axial δ_a and radial δ_r gaps. Curves are presented in the article which illustrate the behavior of the effective efficiency η_e as a function of u/c_{ad}, ε, δ_a and δ_r. It is shown that reducing the degree of partiality reduces the maximum value of η_e and leads to a reduction of $(u/c_{ad})_{opt}$. An increase in either the radial or axial gap results in lowered η_e for all degrees of partiality, with the greatest reduction of efficiency observed at the optimum operating mode. The authors show that the efficiency of a partial turbine therefore depends not only on the degree of partiality, but also on the radial and axial

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ACCESSION NR: AP4040981

gaps. The maximum efficiency for all δ_a and δ_r decreases with decreasing ε, slowly at first and then, beginning at $\varepsilon = 0.3$, rather rapidly. Moreover, the optimum value $(u/c_{ad})_{opt}$ decreases as the degree of partiality is decreased, while the turbine consumption factor remains practically unchanged as the degree of partiality is varied. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 27Nov63

SUB CODE: PR

NO REF SOV: 004

ENCL: 01

OTHER: 004

Card 3/4

ACCESSION NR: AP4040981

ENCLOSURE: 01

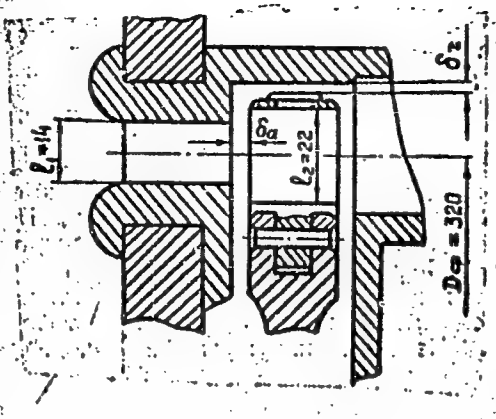

Figure 1 - Diagram of the flow-through section of the turbine

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L 14017-66 EWT(l)/EWT(m)/EWP(w)/EWP(f)/EWP(v)/T-2/EWP(k)/EIC(m)-6 JD/WW/EM

ACC NR: AP6004166 SOURCE CODE: UR/0114/66/000/001/0028/0030

AUTHORS: Zanadvorova, V. N. (Candidate of technical science, Docent); Maksutova, M. K. (Candidate of technical science, Docent)

ORG: none

TITLE: Effects of radial clearance on turbine characteristics

64
B

SOURCE: Energomashinostroyeniye, no. 1, 1966, 28-30

TOPIC TAGS: turbine efficiency, turbine design, turbine, turbine blade, turbomachinery

ABSTRACT: Experiments were performed at the Kazan' Aviation Institute on two types of blades to determine the effects of radial clearance on turbine characteristics. The characteristics were obtained as functions of speed and of radial clearance (to $\delta/\ell = 9\%$), and radial and circumferential flow profiles were obtained at the turbine wheel inlet and outlet. Efficiency as a function of speed and radial clearance for the two types of blades is shown in Fig. 1. Circumferential profiles at 4 radial positions were found to be essentially unaffected by the radial clearance. The radial profiles of α_1, reactivity ρ, specific flow rate $G/\Sigma G$, α_2, and dimensionless speed λ_{c2} for one type of blade are shown in Fig. 2 for various radial clearances. The degree of reaction was also calculated from

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UDC: 621.438:66-971.001.

L 14017-65

ACC NR: AP6004166

$$\varphi - 1 = \frac{(1 - \varphi_{co})}{\bar{r}_2 \bar{\varphi}_1^2 \cos^2 \alpha_1},$$

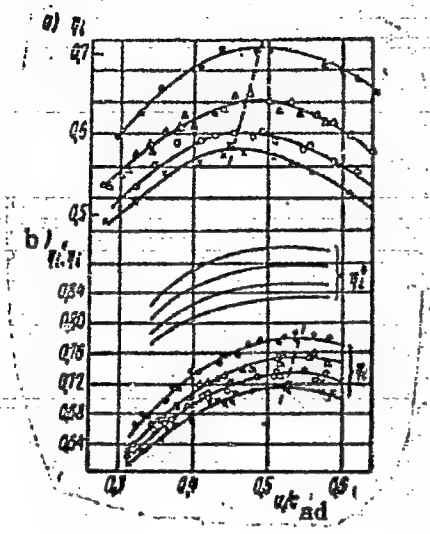

Fig. 1. Efficiency characteristics (type I: δ = 1.35, 2.25, 3.21 and 4.2; II: δ = 0.7, 1.0, 1.5, 2.0)

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L 14017-66
ACC NR: AP6004166

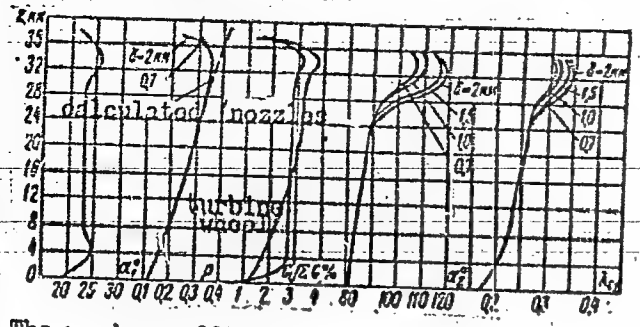


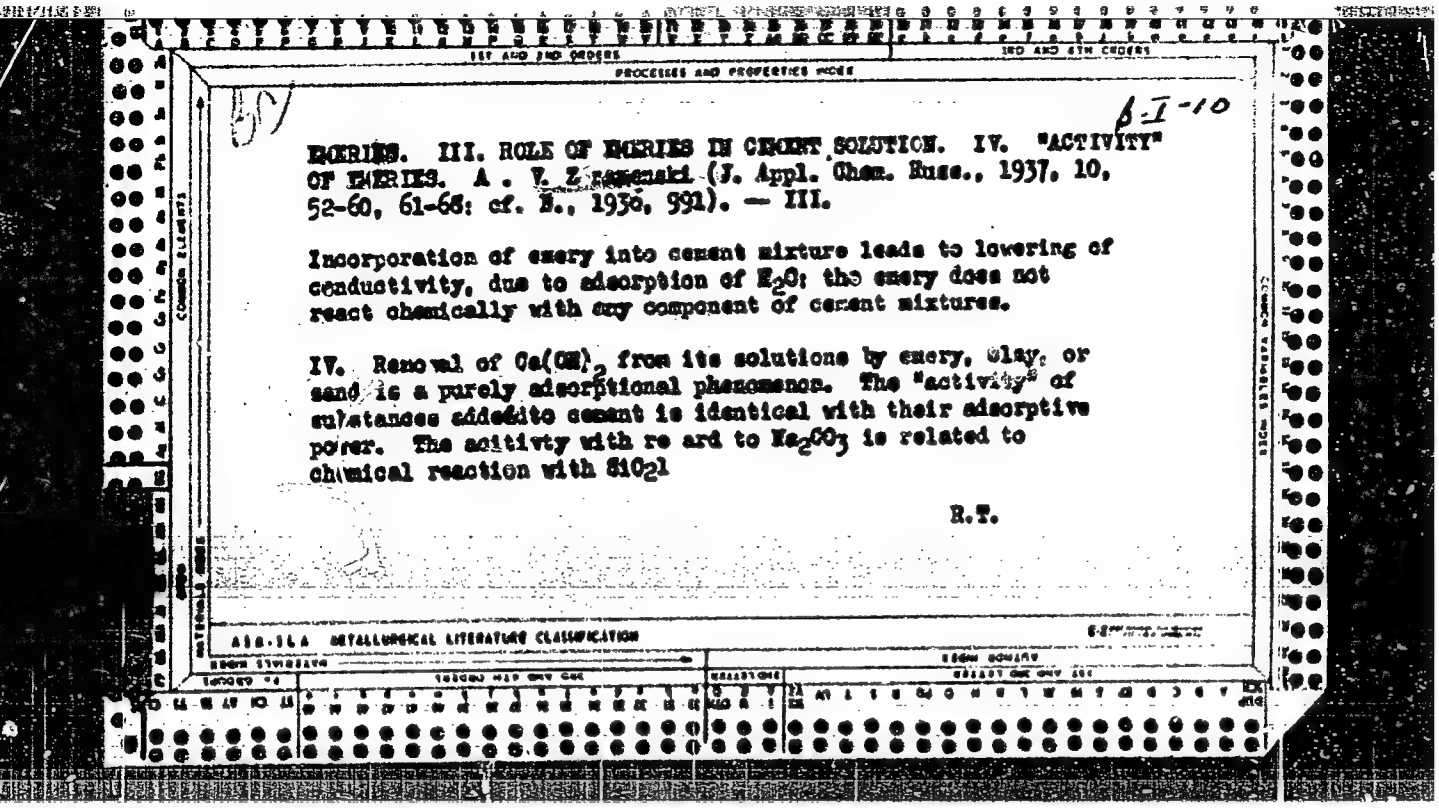
Fig. 2. Radial profiles with type II blades

The maximum officiency as a function of radial clearance is shown graphically. The experimental results were compared with those obtained by calculations from equations proposed by A. M. Zavadovskiy (Osnovy proyektirovaniya protochnoy chasti parovykh i gazovykh turbin. Mashgiz, 1960) and by others. The calculated and experimental quantity G_y/G (where G_y = flow through the radial clearance) is also shown graphically.

Orig. art. has: 5 figures, 1 table, and 2 formulas. [04]

SUB CODE: 10/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 4196

Card 3/3



B-I-10

EMERIES. III. ROLE OF EMERIES IN CEMENT SOLUTION. IV. "ACTIVITY" OF EMERIES. A. V. Zrazhevskii (J. Appl. Chem. Russ., 1937, 10, 52-60, 61-68; cf. B., 1936, 991). — III.

Incorporation of emery into cement mixture leads to lowering of conductivity, due to adsorption of K_2O; the emery does not react chemically with any component of cement mixtures.

IV. Removal of $Ca(OH)_2$ from its solutions by emery, clay, or sand is a purely adsorptional phenomenon. The "activity" of substances added to cement is identical with their adsorptive power. The activity with regard to Na_2CO_3 is related to chemical reaction with SiO_2.

R.T.

112-57-8-16192

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 8, p 18 (USSR)

AUTHOR: Zanarevskaya, Z. P., and Bokhanovskiy, A. P.

TITLE: New Developments in the Manufacture of Lacquered Wiring Conductors (Novoye v tekhnologii izgotovleniya lakirovannykh montazhnykh provodov)

PERIODICAL: Inform.-tekhn. sb. M-vo elektrotekhn. prom-sti SSSR (Engineering Information Collection, Ministry of the Electrical-Engineering Industry, USSR), 1956, Nr 10, pp 8-12

ABSTRACT: Described are the improvements introduced at the "Ukrkabel'" plant which were intended to raise labor productivity and product quality and also to improve working conditions in the production of lacquered wiring conductors, particularly in the processes of diluting lacquer and direct lacquering of conductors. A swivel-blade power mixer and a sealed lacquer vat (fed from a lacquer tank attached to the body of the oven) were designed and built; they are intended for stirring the lacquer being thinned to its working viscosity (35 seconds by the ball-drop method). Molded rubber gauges are inserted in the vat ports instead of metal gauges. Composition of rubber for molded gauges and new

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New Developments in the Manufacture of Lacquered Wiring Conductors

formulae for tubular gauges are given. The new vat and the new formula for rubber increased durability of the gauges 6-7 times. The starting procedure of the oven and the lacquer processing of MBDL and MShDL wires were changed. Lacquering wire with undiluted lacquer (viscosity 67 and 97 seconds) was successfully tried. Undiluted lacquers with viscosity of 100-110 seconds can be used for lacquering wiring conductors; in this case, the number of runs can be reduced to ten, with the rate and temperature of lacquering unchanged. Use of the sealed vat with automatic lacquer feed secures the following advantages: 1. Uniform thickness of lacquer film along the wire and improvement in quality because of the almost constant viscosity and level of the lacquer; 2. Lacquer may be applied with a viscosity of 100-110 seconds without diluting it down to 35 seconds, saving up to 100 kg of solvent (acetone) per ton of lacquer; 3. Increase in lacquering rate (for MBDL and MShDL 0.2-0.5 mm^2 wires, 4-6 m/min versus 2.5-4 m/min); 4. Improvement in working conditions because of a sharp reduction of solvent-vapor content in the air around the workmen; and 5. Facilitation and hastening of the vat cleaning and a reduction of lacquer loss in the form of dry films. Introduction of the power-driven

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mixer nearly doubles the labor productivity, along with facilitating and improving labor conditions and producing a higher quality of lacquering and a more uniform lacquer viscosity.

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S/137/62/000/009/008/033
A006/A101

AUTHORS: Motal, György, Zanati, Tibor

TITLE: A process of manufacturing fused-in p-n-junctions in semiconductor devices

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 9, 1962, 44, abstract 90306 P (Hungarian Patent no. 148283 of June 30, 1961)

TEXT: A method is suggested to eliminate arising mechanical stresses and defects during recrystallization and to assure the reproducibility of "x-x"-transition. In the method the material to be fused-in is heated more slowly than the semiconductor, reaching the eutectic temperature, which is simultaneously the maximum temperature attained by the semiconductor during the cooling period. Cooling of the material to be fused is also performed at a lesser rate than cooling of the semiconductor, since the fusion is conducted by drawing the semiconductor at variable speed through a zone with constant temperature or at a constant speed through a zone with temperatures changing with time. For this purpose a program-controlled furnace can be used. N. Sirotina
[Abstracter's note: Complete translation]

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S/137/62/000/009/008/033
A006/A101

AUTHORS: Motal, György, Zanati, Tibor

TITLE: A process of manufacturing fused-in p-n-junctions in semiconductor devices

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[Abstracter's note: Complete translation]

N. Sirotina

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S/194/62/000/007/048/160
D295/D308

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AUTHORS: Zanati, Tibor, Dévay, József, and Berky, Dénes

TITLE: Automatic control device comprising a photoresistor

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7-2-116 d (Hung. pat., cl. 21e, 28-53, no. 147741, Oct. 15, 1960)

TEXT: A photoelectric relay with photoresistors in the measuring bridge is proposed. The conductivity of the photoresistors varies with light intensity. It also depends on the fluctuation of several physical variables (temperature, pressure, voltage or current) which upset (or restore) the balance of the bridge. The latter energizes a relay which is connected in the circuit of an electron valve or transistor. According to another version, four photoresistors are included in the bridge for operating the device between two limits of the value controlled. The authors give an example of such a controller for controlling the temperature of an electric furnace, where the intensity of illumination of the photoresistors is regulated by flaps fixed on the pointer of a galvanometer which measures

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Automatic control device comprising ... D295/D308

the temperature in the electric furnace. [Abstracter's note: Complete translation.]

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41220
S/194/62/000/007/074/160
D295/D308

AUTHORS: Motál, György, and Zanati, Tibor

TITLE: Manufacture of alloyed p-n junctions in semiconductor devices

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7-4-20 1 (Hung. pat. cl. 21 g, 1 - 16, no. 148283, June 30, 1961)

TEXT: The suggested method aims at eliminating mechanical stresses or defects during re-crystallization, as well as ensuring reproducible junction characteristics. Fuse-in material is heated more slowly than the semi-conductor and reaches a eutectic temperature which is, at the same time, the maximum temperature attained by the semiconductor in the cooling period. Cooling of the fuse-in material is also slower than that of the semi-conductor at variable velocity through a constant-temperature heat region or at constant velocity through a region having a temperature variable with time. A program-controlled oven can be used to this end. [Konverta Egyenirányitógyár.] [Abstracter's note: Complete translation.]

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